

Checklist of amphibians and reptiles of the state of Durango, México

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ABSTRACT: We compiled a list of the herpetofauna of the state of Durango, México, based on published records. The checklist contains 151 species (33 amphibians and 118 reptiles) allocated to one or more of the four major ecoregions of the state. We identified many gaps in the current knowledge of the herpetofauna of Durango, concerning the number of species and their distribution in the state, and hence, further surveys and taxonomic studies are needed to improve the completeness of this checklist.

INTRODUCTION

Knowledge of different aspects of the herpetofauna (amphibians and reptiles) in Mexico is continuously increasing. New species are still being described and added to the Mexican herpetofauna making changes even at an inventory level (Ochoa-Ochoa and Flores-Villela 2006; Wilson *et al.* 2013; Wilson 2013) and improved understanding has been gained by changes in the taxonomy of species due to progress in systematics and molecular biology (Mulcahy 2008; Cox *et al.* 2012). For some Mexican states detailed accounts of their herpetofaunal assemblages are available, but in others, like Durango, this knowledge is far from complete.

Durango is located in northwestern Mexico. It is the fourth largest state in the country, with an area of 121,181 km², stretching between 26°53' and 22°16'N, 102°29' and 107°16' W coordinates (Figure 1). The interaction between the physiographic and climatic characteristics provides a variety of ecosystems supporting the existence of diverse amphibian and reptile species.

The earliest records of the herpetofauna of Durango date back to the mid-19th century (Baird 1859; Kennicott 1860), and there have since been many sporadic and scattered reports in literature on many different topics.

Approximately half of the species currently known in the state were reported in publications prior to 1950, such as in the compendia of Günther (1885-1902) and Smith and Taylor (1945; 1948; 1950). Ensuing 63 years, numerous authors have contributed to increase the knowledge of the herpetofauna of Durango, most notably Dr. Robert G. Webb (*e.g.* Webb and Hensley 1959; Webb and Baker 1962; Webb 1984).

Partial accounts of certain well studied regions of Durango have been made. Species in the arid Chihuahuan desert region in the northeastern portion of the state have been documented by Morafka (1977), and those in the Comarca Lagunera region by Gadsden *et al.* (2006) as

well as some species from restricted regions of north-east Durango by Estrada-Rodríguez *et al.* (2004), Castañeda-Gaytan *et al.* (2005), and Estrada-Rodríguez *et al.* (2006; 2008). The herpetofauna of central-western part of the state also has been relatively well studied and partial lists are available in Webb and Hensley (1959), Webb (1984), and McCranie and Wilson (1987).

In contrast, the herpetofauna in the southern part of the state is poorly known. The most relevant studies in this region are focused on other vertebrate groups (Drake 1958; Webb and Baker 1962; Crossin *et al.* 1973) and the only list dedicated to the herpetofauna of this region is

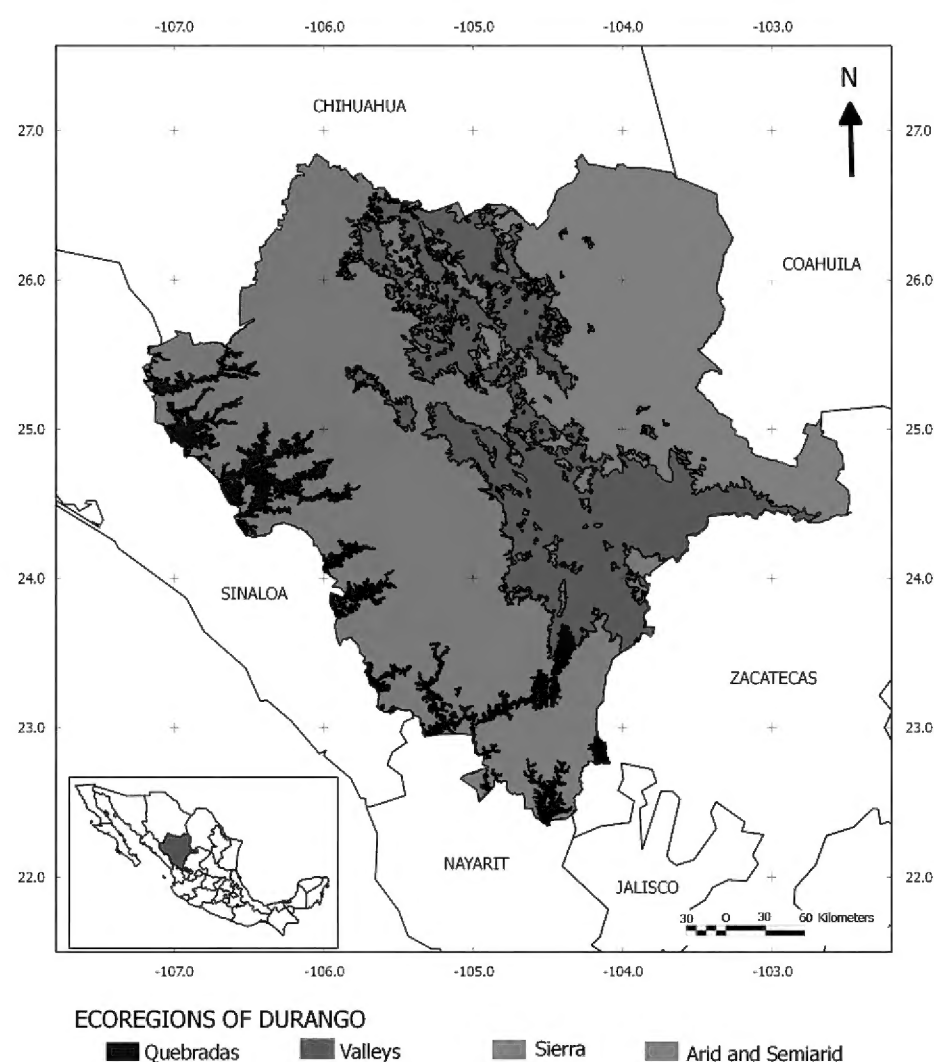


FIGURE 1. Ecoregions of the state of Durango, México.

from La Michilía Biosphere Reserve (Álvarez and Polaco 1983).

Therefore, a complete list of the amphibian and reptile species known to occur in Durango is not available. We aim to compile the first comprehensive checklist of the amphibians and reptiles for the state. The objective of this work is to provide a starting point to encourage future research on Durango's herpetofauna that will with no doubt improve this checklist.

MATERIALS AND METHODS

This checklist is based upon an extensive review of publications up to December 2012, and only considers records that have the support of specimens deposited in a national or a foreign institution. The original list obtained was refined to remove numerous synonyms and was updated following the nomenclature of Liner (2007), with further modifications within families in the anuran and serpent orders following Frost (2013) and Pyron *et al.* (2011), respectively. Recent changes in generic names follow Faivovich *et al.* (2010), for the use of *Agalychnis* instead of *Pachymedusa*, and Frost *et al.* (2006) for *Anaxyrus*, *Incilius* and *Rhinella* instead of *Bufo*.

For an overall view of the distribution and habitat of the species, localities and/or coordinates of each record were allocated to one of the four major ecological regions recognized in Durango (Figure 1), described by Gonzalez-Elizondo *et al.* (2007) as follows:

a) Arid and semiarid region. Lowland plains and mountain ranges from the Bolson de Mapimí, and other lowlands in the northern and eastern parts of the state, that are part of the Chihuahuan Desert. Elevations range from 1076 to 2200 m. The prevalent climate is dry in different types (BWh, BSh, BWh'). Predominant vegetation are thorn scrubs and some communities of halophytic and gypsophile plants.

b) Valleys region. A wide strip of land between the Sierra Madre Occidental (SMO) and the arid zone, oriented NNW-ESE. It includes grasslands, mesas, and small mountain ranges. In the south, it includes part of the Altiplano Mexicano. The mean elevation is 1900 m (1600–2400 m). Climate is temperate and dry (types BS₁K) in most of the area. Original vegetation includes grasslands and mezquite grassland, although a great portion has been modified for agriculture and cattle ranching.

c) Sierra region. Includes the SMO and its branches. Elevations range from 1900 to 2400 m in the eastern portion and from 2000 to 3340 m in the SMO. Climates are temperate, dry on the eastern slope [C(w)] , and more mesic and cooler [C(E)(w)] on the higher portions. Vegetation includes chaparral, open forest, pine-oak forests, other coniferous forest, and a small area of cloud forest.

d) Quebradas region. Located in the low portion of the western slope of the SMO with elevations from 130 to 2000 m. This region is rugged, with steep slopes and deep canyons which contain the rivers that reach Nayarit and Sinaloa. The predominant climates are warm and humid [types ACw, A(w), C(m)(w)] and vegetation consists of elements of tropical affinity such as tropical forests, dry, deciduous or semideciduous forests, and areas with thornscrub forest.

The results are presented as number of species. We also include 1) the protection status according to the current Mexican regulation in the NOM-059-2010 (SEMARNAT 2010); 2) mention of Mexican endemics and introduced taxa (Flores-Villela 1993; Lemos-Espinal and Smith 2007); 3) as a reference, the citation of the first record we could trace in the literature for each taxon, whether with the current name or with a synonym.

RESULTS AND DISCUSSION

We obtained a final list of 151 species in 26 families and 72 genera, corresponding to 33 species of amphibians (3 salamanders and 30 anurans) and 118 of reptiles (5 turtles, 53 lizards and 60 snakes) (Table 1).

The total number of species we obtained is close to the number used by Ochoa-Ochoa and Flores-Villela (2006), who documented the occurrence of 153 species in Durango based on collections records and other sources, placing Durango as the 16th state in Mexico in richness of herpetofaunal species, below Chihuahua and Nuevo Leon, although they did not list the species.

In the present checklist, the herpetofauna of Durango is distributed per ecological region as follows: 71 of the species listed (47%) occur in the arid and semiarid region; 45 species (29.8%) in the Valleys region; 65 species (43%) in the Sierra region, and 37 species (24.5%) in the Quebradas region (Table 1). Sixty five percent of the species (98 species) are currently known to inhabit only one of the four regions, while the rest have been registered in two or more regions.

Most of the species listed in one ecoregion are expected to inhabit that ecoregion only, but there are species known from only one or few records that are likely to occur in more than one ecological region. Thus, it is possible that, this will change as more information is generated.

Some of the single records were found in the oldest literature and have not been recently validated, *e.g.*, reports of *Coleonyx fasciatus*, *Smilisca baudinii* and *Trimorphodon tau* (Günther 1885-1902). Also, *Plestiodon callicephalus* (Boulenger 1887) and *Thamnophis validus* (Kennicott 1860) need to be confirmed, as the exact locality for these records is unknown. We include them on the list, however, because their occurrence in the state is generally accepted. Another notable single record exists for *Adelophis foxi* (Rossman and Blaney 1968), which has not been collected in Durango since it was described.

Sistrurus catenatus is mentioned in a historical source (Cuesta-Terron 1921), but as this record cannot be validated (Campbell and Lamar 2004; Muñoz-Martínez and Valdez-Lares 2012), we have excluded it from the checklist. Two other species previously considered as part of Durango's herpetofauna, *Conophis vittatus* and *Coluber constrictor*, have been removed from the list by Webb (2001a) because of inconsistencies with the origin and location of the records, and the lack of recent material to support their inclusion.

Endemism and Conservation Status

Flores-Villela and Geréz (1994) considered that 52 Mexican endemics occur in Durango (11 amphibians and 41 reptiles). In our updated review, we found that 67 species in the state (19 amphibians and 48 reptiles)

are endemic to Mexico (Table 1). According to the NOM-059, 57 of the listed species are included by the Mexican regulation in some risk category: 3 endangered (P), 22 threatened (A) and 32 in special concern (Pr).

The three endangered species, *Gopherus flavomarginatus*, *Uma paraphygas*, and *Xantusia bolsonae* each has a limited distribution in the north-eastern part of the state, known as Bolson de Mapimí, which extends into the adjacent states of Chihuahua and Coahuila. One of the major threats that these species face is the reduction and modification of their habitat and, at least for *U. paraphygas*, global warming is predicted to have a major impact on its persistence (Ballesteros-Barrera *et al.* 2007). Only *X. bolsonae* has been evaluated according to the Mexican regulations to assess its conservation status, and the extraction of individuals for the pet market was considered a major threat (Flores-Villela and Rubio-Pérez 2008).

Xantusia bolsonae, *Thamnophis nigronuchalis* and *Adelophis foxi* are the only species endemic to the state of Durango. Although *A. foxi* has not been found for more than 30 years, it is listed in the NOM-059 merely as a special concern species (Pr).

Taxonomic and distributional notes

The distribution of many of the species in Durango is poorly known and some species also are poorly understood taxonomically or have some issues that have not been completely addressed.

Santos-Barrera and Flores-Villela (2011) mention that populations currently known as *Incilius occidentalis*, which is widely distributed in eastern Durango, are likely to contain two more species in addition to the one described in that paper, *Incilius mccoyii*. The most recent study of the species of the *Ambystoma tigrinum* complex was made by Webb (2004), where he described *Ambystoma silvensis* from populations formerly known as *A. velasci* from the highlands of the SMO, leaving the rest of the populations tentatively assigned to *Ambystoma subsalsum*, commenting the need of further studies.

Some authors have suggested that the taxon *hartwegi*, currently known as subspecies of *Trachemys gaigeae hartwegi*, should be recognized as a full species (Stuart and Ernst 2004; Lemos-Espinal and Smith 2008).

The distribution limits between *Sceloporus edbelli* and *S. consobrinus* are not well established. The area of contact of these two species lies within the area of contact of Durango, Chihuahua and Coahuila and it has been suggested that they could be sympatric in some areas (Lemos-Espinal *et al.* 1998, 1999; Lemos-Espinal and Smith 2008). The distribution of *S. edbelli*, described in 1995 (Smith *et al.* 1995) includes most of the Mapimí Biosphere Reserve. However, early records in this reserve were allocated to *S. undulatus consobrinus* (e.g. Grenot *et al.* 1978). As we cannot be certain of the identity of those records, we provisionally include both species in the checklist.

Lara-Góngora (2004) described *Sceloporus lemosespinali* comparing it to the other members of the *S. grammicus* complex, but only mentioned Durango in the distribution of *S. shannonorum*. In previous publications, populations of *S. grammicus* from Durango were referred

to *S. g. disparilis* or *S. g. microlepidotus* (e.g. Álvarez and Polaco 1983; Webb 1984) reason for us to include *S. grammicus* in the list until the situation of this complex be solved.

Sceloporus lineolateralis is a controversial species. Several inconclusive studies have moved *S. lineolateralis* from species to subspecies of *Sceloporus jarrovi* (e.g. Webb and Hensley 1959; Sites Jr. *et al.* 1992; Martínez-Méndez and Méndez-de la Cruz 2007; Wiens *et al.* 2010), but it is usually regarded as a full species (Bell *et al.* 2003).

The status of the species of the genus *Gerrhonotus* in the state also remains uncertain. Good (1994) assigned specimens from Durango to the species *G. infernalis* in the northeast and *G. cf. liocephalus* in the central-western portion of the state. However, the first record of this species in Durango came from north-central Durango and was identified as *G. liocephalus taylori* (Webb and Hensley 1959). Lemos-Espinal and Smith (2007) elevated the taxon *taylori* to species level, suggesting that specimens from elsewhere in western Mexico might also belong to this species.

Barisia imbricata ciliaris was proposed to be elevated to species rank by Smith *et al.* (2002); however, Zaldivar-Riveron *et al.* (2005) found evidence that *B. imbricata*, as presently envisioned is actually a complex of several species, but could not support the validation of the taxon *ciliaris* to the species level.

Bezy and Flores-Villela (1999) commented that an isolated population of *Xantusia sp.* in the Cerro San Ignacio in the Mapimí Biosphere Reserve, could belong to a different species than the other two recognized in Durango, but more study is required. The most recent study of this complex (Sinclair *et al.* 2004) supports the validity of *X. bolsonae* and *X. extorris* and highlights some questions about *X. extorris*, but does not consider the San Ignacio population.

A recent study on the *Thamnophis rufipunctatus* complex (Wood *et al.* 2011) suggested that the subspecies *unilabialis* and *rufipunctatus* should be considered as full species and revalidated the recognition of *T. nigronuchalis* as a species-level taxon.

Taxa probably occurring in the state of Durango

Apart from the two areas in Durango whose herpetofauna can be considered well known, most of the state remains poorly studied and there are other taxa that probably will be added to the state inventory.

Here we list some taxa occurring in the adjacent states of Chihuahua, Coahuila, Jalisco, Sinaloa, Nayarit and Zacatecas, that might occur also in Durango. Sources of the records in the municipalities mentioned are referenced by Lemos-Espinal and Smith (2007) for Chihuahua, Lemos-Espinal and Smith (2008) for Coahuila, Hardy and McDiarmid (1969) for Sinaloa, Zweifel (1959), Webb (2001b) and Canseco-Marquez *et al.* (2007) for Nayarit and Jalisco, and Myers (1974) and Wilson and McCranie (1979) for Zacatecas. The location of all these records lies within a distance up to 25 km around Durango boundaries.

Amphibians

Anaxyrus speciosus has been recorded in much of

Coahuila and central Chihuahua. The closest locality to Durango is in the municipality of Torreon, Coahuila.

Craugastor hobartsmithi has been recorded in the municipality of Concordia in Sinaloa.

Exerodonta smaragdina has been collected in the state of Sinaloa near Santa Lucia, municipality of Concordia. It is probable that this species occurs in southwestern Durango.

Eleutherodactylus teretistes is known to occur in the municipality of Cosalá, Sinaloa. Although Lynch (1970) mentioned Durango in the distribution of the species, a specific locality was not included.

Hyla smithi has been collected near the border of Durango in the municipalities of Rosario, Sinaloa and Huajicori in Nayarit, and in southwestern Chihuahua. It probably occurs in western Durango.

Hyla wrightorum. This species probably occurs in the northwestern portion of Durango. The southern record in Chihuahua is in the municipality of Balleza.

Lithobates psilonota is known to occur in the municipality Del Nayar, in north-east Nayarit and also in the highlands of Nayarit within the southern portion of the SMO.

Lithobates tarahumarae. Its distribution includes eastern Sonora, western Chihuahua, and northeastern Sinaloa. The nearest record in Chihuahua is in the municipality of Guadalupe y Calvo.

Reptiles

Terrapene nelsoni. Records exist from Chihuahua, Jalisco, Nayarit, Sinaloa and Sonora with all localities restricted to the Pacific versant of the SMO.

Ctenosaura macrolopha is known to occur in the municipality of Guadalupe y Calvo in southwestern Chihuahua.

Gerrhonothus taylori has been collected in the municipalities of San Francisco del Oro and Santa Barbara in southern Chihuahua.

Plestiodon parvulus is known to occur in the south-east of Sinaloa, in the municipality of El Rosario.

Sceloporus alvibentris have been recorded in Cosalá, eastern Sinaloa and in Guadalupe y Calvo, southwestern Chihuahua.

Sceloporus lemosespinali inhabits the SMO in Chihuahua and Sonora and the nearest locality is in Balleza, southwestern Chihuahua.

Sceloporus virgatus has been recorded in several localities in the SMO in Chihuahua and possibly inhabits the northern part of Durango

Crotalus basiliscus. The nearest localities are north-eastern Nayarit in the municipality of Del Nayar.

Crotalus polystictus. Campbell and Lamar (2004)

mentioned that this species may occur as far north as southern Durango.

Conophis vittatus. Although this species was removed from the list of species of Durango by Webb (2001a) it is likely to occur in southern Durango.

Dryadophis cliftoni is known to occur in the municipalities of Concordia and Rosario in eastern Sinaloa.

Drymobius margaritiferus has been recorded in Cosalá, eastern Sinaloa, and also in western Chihuahua.

Lampropeltis triangulum. The nearest records are in El Rosario, southern Sinaloa. It also has been found in southwestern Chihuahua.

Rhadinaea hesperia have been reported in the municipalities El Rosario, Sinaloa, Guadalupe y Calvo in Chihuahua and Mezquital del Oro in Zacatecas.

Sonora mutabilis has been found in Del Nayar, north-east Nayarit.

Some species distributed in the Pacific lowlands of western Mexico occur in canyons and cliffs of the southwestern part of Chihuahua. Since the western slopes of the SMO in Durango contain similar habitats, some of the following taxa may be present there: *Eleutherodactylus interorbitalis*, *Lithobates forreri*, *Pseudoeurycea bellii*, *Rhinoclemys pulcherrima*, *Plestiodon parviauriculatus*, *Gyalopion quadrangulare*, *Imantodes gemmistratus*, *Procinura aemula*, *Sympholis lipiens*, *Tantilla yaquia*, *Micrurus distans*, *Leptotyphlops dugesii* and *Agkistrodon bilineatus*.

Finally, although the herpetofauna of the arid portion of the state is well known, some species registered in the municipality of San Pedro and Matamoros in Coahuila (approx. 40 km from Durango), also might be found in Durango: *Incilius nebulifer*, *Eleutherodactylus marnocki* and *Sceloporus ornatus*.

Final comments

This checklist is the first comprehensive compilation of published information on the herpetofauna in Durango. Doubtless, material already collected and deposited in museums, universities and other institutions could provide more information and add other taxa to the list, and it is certainly necessary to carry on with studies of Durango's herpetofauna that will help to elucidate the limits of the distribution and the taxonomy of many of the species listed. Durango's territory is vast and diverse, and has many areas, mainly in the Quebradas, Sierra, and even in the Valleys ecoregions, whose herpetofauna has not been inventoried. Having this basic knowledge is crucial in order to recommend and adopt proper actions for the conservation and/or management of Durango's natural resources.

TABLE 1. Checklist of amphibians and reptiles of the state of Durango, Mexico. Endemism: E= species endemic to Mexico; ED= endemic to Durango; N= not endemic to Mexico; I=introduced to Mexico. Protection status: A (Threatened); P (Endangered); Pr (Special protection). Question marks indicate uncertainties regarding the exact location of the records or identity of the taxa. For a detailed explanation of this table see Materials and Methods.

| TAXON | ECOREGION | | | | STATUS | ENDEMISM | REFERENCE |
|---|-----------|---------|--------|-----------|--------|----------|--|
| | Arid | Valleys | Sierra | Quebradas | | | |
| CLASS AMPHIBIA | | | | | | | |
| ORDER ANURA | | | | | | | |
| FAMILY Bufonidae | | | | | | | |
| <i>Anaxyrus cognatus</i> (Say, in James, 1823) | X | X | | | | N | Ferrari-Perez (1886) |
| <i>Anaxyrus compactilis</i> (Wiegmann, 1833) | | X | X | | | E | Chrapliwy and Fugler (1955) |
| <i>Anaxyrus debilis</i> (Girard, 1854) | X | X | | | Pr | N | Taylor (1936) |
| <i>Anaxyrus mexicanus</i> (Brocchi, 1879) | | | X | | | E | Günther (1885-1902) |
| <i>Anaxyrus punctatus</i> (Baird and Girard, 1852) | X | X | | | | N | Riemer (1955) |
| <i>Anaxyrus woodhousii</i> (Girard, 1854) | | X | | | | N | Smith and Taylor (1948) |
| <i>Incilius mazatlanensis</i> (Taylor, 1940) | | | | X | | E | Webb and Baker (1962) |
| <i>Incilius occidentalis</i> (Camerano, 1879) | | X | X | X | | E | Günther (1885-1902) |
| <i>Rhinella marina</i> (Linnaeus, 1758) | | | | X | | N | Günther (1885-1902) |
| FAMILY Craugastoridae | | | | | | | |
| <i>Craugastor augusti</i> (Dugés, 1879) | | ? | | X | | N | Günther (1885-1902) |
| <i>Craugastor occidentalis</i> (Taylor, 1941) | | | X | | | E | Webb and Baker (1962) |
| <i>Craugastor tarahumaraensis</i> (Taylor, 1940) | | | X | | Pr | E | Zweifel (1956) |
| <i>Craugastor vocalis</i> (Taylor, 1940) | | | | X | | E | Webb and Baker (1962) |
| FAMILY Eleutherodactylidae | | | | | | | |
| <i>Eleutherodactylus nitidus</i> (Peters, 1870) | | | X | | | E | Webb and Baker (1962) |
| <i>Eleutherodactylus pallidus</i> (Duellman, 1958) | | | | X | Pr | E | Webb and Baker (1962) |
| <i>Eleutherodactylus saxatilis</i> (Webb, 1962) | | | X | | | E | Webb (1962b) |
| FAMILY Hylidae | | | | | | | |
| <i>Agalychnis dacnicolor</i> (Cope, 1864) | | | | X | | E | Muñiz-Martínez (2000) |
| <i>Hyla arenicolor</i> Cope, 1886 | | X | X | X | | N | Kellogg (1932) |
| <i>Hyla eximia</i> Baird 1854 | | X | X | | | E | Günther (1885-1902) |
| <i>Plectrohyla bistincta</i> (Cope, 1877) | | | X | | Pr | E | Duellman (1970) |
| <i>Smilisca baudinii</i> (Duméril and Bibron, 1841) | | | | X | | N | Günther (1885-1902) |
| FAMILY Microhylidae | | | | | | | |
| <i>Gastrophryne olivacea</i> (Hallowell, 1856) | X | | | | Pr | N | Taylor (1939) |
| FAMILY Ranidae | | | | | | | |
| <i>Lithobates berlandieri</i> (Baird, 1859) | X | | ? | | Pr | N | Taylor and Smith (1945) |
| <i>Lithobates catesbeianus</i> (Shaw, 1802) | X | | | | | I | Estrada-Rodriguez <i>et al.</i> (2004) |
| <i>Lithobates chiricahuensis</i> (Platz and Mecham, 1979) | | X | X | | A | N | Günther (1885-1902) |
| <i>Lithobates magnaocularis</i> (Frost and Bagnara, 1974) | | | | X | | E | Webb (1991) |
| <i>Lithobates montezumae</i> (Baird, 1854) | | X | | | Pr | E | Webb (1991) |
| <i>Lithobates pustulosus</i> (Boulenger, 1883) | | | | X | Pr | E | Günther (1885-1902) |
| FAMILY Scaphiopodidae | | | | | | | |
| <i>Scaphiopus couchii</i> Baird, 1854 | X | X | | | | N | Webb (1960) |
| <i>Spea multiplicata</i> (Cope, 1863) | X | X | X | | | N | Kellogg (1932) |
| ORDER CAUDATA | | | | | | | |
| FAMILY Ambystomatidae | | | | | | | |
| <i>Ambystoma rosaceum</i> Taylor, 1941 | | | X | | Pr | E | Shannon (1951) |
| <i>Ambystoma silvense</i> Webb, 2004 | | | X | | | E | Webb (2004) |
| <i>Ambystoma subsalsum</i> Taylor, 1943 | | X | X | | | E | Günther (1885-1902) |
| CLASS REPTILIA | | | | | | | |
| ORDER TESTUDINES | | | | | | | |
| FAMILY Emydidae | | | | | | | |
| <i>Trachemys gaigeae</i> (Legler, 1990) | X | | | | | N | Hartweg (1939) |
| FAMILY Kinosternidae | | | | | | | |
| <i>Kinosternon durangoense</i> Iverson, 1979 | X | | | | | E | Hartweg (1938) |
| <i>Kinosternon hirtipes</i> (Wagler, 1830) | X | X | X | X | Pr | N | Smith and Taylor (1950) |
| <i>Kinosternon integrum</i> LeConte, 1854 | | X | X | | Pr | E | Webb and Hensley (1959) |
| FAMILY Testudinidae | | | | | | | |

TABLE 1. CONTINUED.

| TAXON | ECOREGION | | | | STATUS | ENDEMICISM | REFERENCE |
|---|-----------|---------|--------|-----------|--------|------------|--|
| | Arid | Valleys | Sierra | Quebradas | | | |
| <i>Gopherus flavomarginatus</i> Legler, 1959 | X | | | | P | E | Legler (1959) |
| ORDER SQUAMATA | | | | | | | |
| FAMILY Anguidae | | | | | | | |
| <i>Barisia imbricata</i> (Wiegmann, 1828) | | X | X | | Pr | E | Smith (1942) |
| <i>Elgaria kingii</i> Gray, 1838 | | | X | | Pr | N | Webb (1962a) |
| <i>Gerrhonotus infernalis</i> Baird, 1859 | X | | X | | | N | Webb and Hensley (1959) |
| <i>Gerrhonotus liocephalus</i> Wiegmann, 1828 | | | X | | Pr | E | Webb and Baker (1962) |
| FAMILY Crotophytidae | | | | | | | |
| <i>Crotaphytus collaris</i> (Say, 1823) | X | | | | A | N | Smith and Taylor (1950) |
| <i>Gambelia wislizenii</i> (Baird and Girard, 1852) | X | | | | Pr | N | Grenot <i>et al.</i> (1978) |
| FAMILY Gekkonidae | | | | | | | |
| <i>Coleonyx brevis</i> Stejneger, 1893 | X | | | | Pr | N | Stejneger and Barbour (1943) |
| <i>Coleonyx fasciatus</i> (Boulenger, 1885) | | | | X | | E | Boulenger (1885) |
| <i>Hemidactylus turcicus</i> (Linnaeus, 1758) | X | | | | | I | Lemos-Espinal <i>et al.</i> (2001b) |
| <i>Phyllodactylus tuberculosus</i> Wiegmann, 1834 | | | | X | | E | Baird (1859) |
| FAMILY Helodermatidae | | | | | | | |
| <i>Heloderma horridum</i> Wiegmann, 1829 | | | X | X | A | N | Muñiz-Martínez and Rojas-Pérez (2009); Ahumada-Carrillo <i>et al.</i> (2011) |
| FAMILY Iguanidae | | | | | | | |
| <i>Ctenosaura pectinata</i> (Wiegmann, 1834) | | | | X | A | E | Günther (1885-1902) |
| FAMILY Phrynosomatidae | | | | | | | |
| <i>Cophosaurus texanus</i> Troschel, 1852 | X | | | | A | N | Peters (1951) |
| <i>Holbrookia approximans</i> Baird, 1858 | X | X | | | | N | Smith (1935) |
| <i>Phrynosoma cornutum</i> (Harlan, 1824) | X | X | | | | N | Smith and Mittleman (1943) |
| <i>Phrynosoma hernandesi</i> Girard, 1858 | | X | X | | | N | Smith (1942) |
| <i>Phrynosoma modestum</i> Girard, 1852 | X | | | | | N | Smith and Mittleman (1943) |
| <i>Phrynosoma orbiculare</i> (Linnaeus, 1758) | | X | X | | A | E | Boulenger (1885) |
| <i>Sceloporus bimaculosus</i> Phelan and Brattstrom, 1955 | X | | | | | N | Smith (1939) |
| <i>Sceloporus bulleri</i> Boulenger, 1894 | | | X | | | E | Martin (1958) |
| <i>Sceloporus clarkii</i> Baird and Girard, 1852 | | | | X | | N | Crossin <i>et al.</i> (1973) |
| <i>Sceloporus consobrinus</i> Baird and Girard 1853 | X | | | | | N | Smith (1939) |
| <i>Sceloporus edbelli</i> Smith, Chizar and Lemos-Espinal, 1995 | X | | | | | E | Smith (1939) |
| <i>Sceloporus grammicus</i> Wiegman, 1828 | X | | X | | Pr | N | Boulenger (1885) |
| <i>Sceloporus horridus</i> Wiegmann, 1834 | | | | X | | E | Boulenger (1885) |
| <i>Sceloporus jarrovi</i> Cope, 1875 | X | | X | | | N | Boulenger (1885) |
| <i>Sceloporus lineolateralis</i> Smith, 1936 | X | | | | | E | Smith (1936) |
| <i>Sceloporus maculosus</i> Smith, 1934 | X | | | | Pr | E | Smith (1939) |
| <i>Sceloporus merriami</i> Stejneger, 1904 | X | | | | | N | Webb (1982) |
| <i>Sceloporus nelsoni</i> Cochran, 1923 | | | | X | | E | Webb and Baker (1962) |
| <i>Sceloporus poinsettii</i> Baird and Girard, 1852 | X | X | X | | | N | Boulenger (1885); Smith (1936); Webb (2006) |
| <i>Sceloporus scalaris</i> Smith, Wiegmann, 1828 | | X | X | X | | E | Smith (1939) |
| <i>Sceloporus shannonorum</i> Langebartel, 1959 | | | X | | | E | Webb (1969) |
| <i>Sceloporus slevini</i> Smith, 1937 | | | X | | | N | Smith (1937) |
| <i>Sceloporus spinosus</i> Wiegmann, 1828 | | X | | | | E | Smith (1939) |
| <i>Sceloporus torquatus</i> Wiegmann, 1828 | X | | | | | E | Webb and Hensley (1959) |
| <i>Uma parapygas</i> Williams, Chrapliwy and Smith, 1959 | X | | | | P | E | Morafka (1977) |
| <i>Urosaurus bicarinatus</i> (Duméril, 1856) | | | | X | | E | Boulenger (1885) |
| <i>Urosaurus ornatus</i> (Baird and Girard, 1852) | X | | | | | N | Lemos-Espinal <i>et al.</i> (2001a) |
| <i>Uta stansburiana</i> (Baird and Girard, 1852) | X | | | | A | N | Smith and Taylor (1950) |
| FAMILY Polychrotidae | | | | | | | |
| <i>Norops nebulosus</i> (Wiegmann, 1834) | | | X | X | | E | Boulenger (1885) |
| FAMILY Scincidae | | | | | | | |
| <i>Plestiodon bilineatus</i> (Tanner, 1958) | | | X | | | E | Boulenger (1887) |
| <i>Plestiodon callicephalus</i> (Bocourt, 1879) | | | | ? | | N | Boulenger (1887) |



TABLE 1. CONTINUED.

| TAXON | ECOREGION | | | | STATUS | ENDEMISM | REFERENCE |
|---|-----------|---------|--------|-----------|--------|----------|--|
| | Arid | Valleys | Sierra | Quebradas | | | |
| <i>Plestiodon lynxe</i> (Wiegmann, 1834) | | | X | | Pr | E | Drake (1958) |
| <i>Plestiodon obsoletus</i> (Baird and Girard, 1852) | X | | | | | N | Conant (1965) |
| <i>Scincella lateralis</i> (Say, 1823) | X | | | | Pr | N | Smith <i>et al.</i> (1997) |
| FAMILY Teiidae | | | | | | | |
| <i>Aspidoscelis costata</i> (Cope, 1878) | | | | X | Pr | E | Webb and Baker (1962) |
| <i>Aspidoscelis gularis</i> (Baird and Girard, 1852) | X | | | | | N | Smith and Mittleman (1943) |
| <i>Aspidoscelis inornata</i> (Baird, 1859) | X | | | | | N | Webb and Hensley (1959); Smith <i>et al.</i> (2000); Lemos-Espinal <i>et al.</i> (2001a) |
| <i>Aspidoscelis marmorata</i> (Baird and Girard, 1852) | X | | | | | N | Smith and Taylor (1950) |
| <i>Aspidoscelis scalaris</i> (Baird and Girard, 1852) | X | X | | | | N | Walker (1981) |
| FAMILY Xantusiidae | | | | | | | |
| <i>Xantusia bolsonae</i> Webb, 1970 | X | | | | P | ED | Webb (1970) |
| <i>Xantusia extorris</i> Webb, 1965 | X | | | | | E | Webb (1965) |
| ORDER SERPENTES | | | | | | | |
| FAMILIY Boidae | | | | | | | |
| <i>Boa constrictor</i> Linnaeus, 1758 | | | | X | A | N | Günther (1885-1902) |
| FAMILIY Colubridae | | | | | | | |
| <i>Adelophis foxi</i> Rossman and Blaney, 1968 | | | X | | Pr | ED | Rossman and Blaney (1968) |
| <i>Arizona elegans</i> Kennicott, 1859 | X | X | | | | N | Williams <i>et al.</i> (1961) |
| <i>Bogertophis subocularis</i> (Brown, 1901) | X | X | | | | N | Webb (1960) |
| <i>Coluber bilineatus</i> (Jan, 1863) | | | | X | | N | Webb (1982) |
| <i>Coluber flagellum</i> Shaw, 1802 | X | X | X | | A | N | Smith (1941) |
| <i>Coluber mentovarius</i> (Duméril, Bibron and Duméril, 1854) | | X | | | A | N | Johnson (1977) |
| <i>Coluber taeniatus</i> (Hallowell, 1852) | X | X | | | | N | Grenot <i>et al.</i> (1978) |
| <i>Conopsis nasus</i> Günther, 1858 | | | X | | | E | Günther (1885-1902) |
| <i>Diadophis punctatus</i> (Linnaeus, 1776) | X | | X | | | N | McCoy (1964) |
| <i>Drymarchon melanurus</i> (Duméril, Bibron and Duméril, 1854) | | | X | X | | N | Muñiz-Martínez and Valdez-Lares (2011) |
| <i>Geophis dugesii</i> Bocourt, 1883 | | | X | | | E | Webb (1977) |
| <i>Gyalopion canum</i> (Cope, 1861) | X | | | | | N | Webb (1960) |
| <i>Heterodon kennerlyi</i> Kennicott, 1860 | X | X | | | Pr | N | Dunn (1936) |
| <i>Hypsiglena jani</i> (Dugés, 1865) | X | | | | | N | Williams <i>et al.</i> (1961) |
| <i>Hypsiglena torquata</i> (Günther, 1860) | | | | X | Pr | N | Yarrow (1882) |
| <i>Lampropeltis alterna</i> (Brown, 1901) | X | X | X | | A | N | Tanzer (1970) |
| <i>Lampropeltis getula</i> (Linnaeus, 1766) | X | X | | | A | N | Zweifel (1954) |
| <i>Lampropeltis mexicana</i> (Garman, 1884) | | | X | | A | E | Webb (1961) |
| <i>Lampropeltis webbi</i> Bryson, Dixon and Lazcano, 2005 | | | X | | | E | Bryson <i>et al.</i> (2001) |
| <i>Leptodeira splendida</i> Günther, 1895 | | | | X | | E | Valdez-Lares and Muñiz-Martínez (2011) |
| <i>Leptophis diplotropis</i> (Günther, 1872) | | | | X | A | E | Valdez-Lares and Muñiz-Martínez (2011) |
| <i>Mastigodryas cliftoni</i> (Hardy, 1964) | | | X | | | E | Webb (1984) |
| <i>Nerodia erythogaster</i> (Forster, 1771) | X | | | | A | N | Conant (1953) |
| <i>Oxybelis aeneus</i> (Wagler, 1824) | | | | X | | N | Webb and Baker (1962) |
| <i>Pantherophis emoryi</i> (Baird and Girard, 1853) | X | | | | | N | Smith (1943) |
| <i>Pituophis catenifer</i> Blainville, 1835 | X | X | | | | N | Zweifel (1954) |
| <i>Pituophis deppei</i> (Duméril, 1853) | | X | X | | A | E | Duellman (1960) |
| <i>Pseudoficimia frontalis</i> (Cope, 1864) | | | | X | | E | Günther (1885-1902) |
| <i>Rhadinaea laureata</i> (Günther, 1868) | | | X | | | E | Drake (1958) |
| <i>Rhinocheilus lecontei</i> Baird and Girard, 1853 | X | | | | | N | Dunkle and Smith (1937) |
| <i>Salvadora bairdii</i> Jan, 1860 | | | X | | Pr | E | Webb (1984) |
| <i>Salvadora deserticola</i> Schmidt, 1940 | X | | | | | N | Grenot <i>et al.</i> (1978) |
| <i>Salvadora grahamiae</i> Baird and Girard, 1853 | | | X | | | N | Tanner (1985) |
| <i>Senticolis triaspis</i> (Cope, 1866) | | | ? | | | N | Price (1991) |
| <i>Sonora semiannulata</i> Baird and Girard, 1853 | X | | | | | N | Frost (1983) |
| <i>Storeria storerioides</i> (Cope, 1866) | | | X | | | E | Günther (1885-1902) |
| <i>Tantilla atriceps</i> (Günther, 1895) | X | | | | A | N | Williams <i>et al.</i> (1961) |
| <i>Tantilla bocourti</i> (Günther, 1895) | | | X | | | E | Webb and Baker (1962) |

TABLE 1. CONTINUED.

| TAXON | ECOREGION | | | | STATUS | ENDEMICISM | REFERENCE |
|--|-----------|---------|--------|-----------|--------|------------|--|
| | Arid | Valleys | Sierra | Quebradas | | | |
| <i>Tantilla nigriceps</i> Kennicott, 1860 | X | | | | | N | Webb (1960) |
| <i>Tantilla wilcoxi</i> Stejneger, 1902 | | X | X | | | N | Webb and Hensley (1959) |
| <i>Thamnophis cyrtopsis</i> (Kennicott, 1860) | X | X | X | X | A | N | Kennicott (1860); Webb (1966) |
| <i>Thamnophis eques</i> (Reuss, 1834) | X | X | X | | A | N | Boulenger (1893); Conant (1963) |
| <i>Thamnophis errans</i> Smith, 1942 | | | X | | | E | Smith and Taylor (1945) |
| <i>Thamnophis marcianus</i> (Baird and Girard, 1853) | X | | | | A | N | Dunkle and Smith (1937) |
| <i>Thamnophis melanogaster</i> (Wiegmann, 1830) | X | X | X | X | A | E | Smith (1943); Webb (2002) |
| <i>Thamnophis nigronuchalis</i> Thompson, 1957 | | | X | | Pr | ED | Thompson (1957) |
| <i>Thamnophis pulchrilatus</i> (Cope, 1885) | | | X | | | E | Webb (1966) |
| <i>Thamnophis rufipunctatus</i> (Cope, 1875) | X | | X | | | N | Smith (1943) |
| <i>Thamnophis validus</i> (Kennicott, 1860) | | | | ? | | E | Kennicott (1860) |
| <i>Trimorphodon tau</i> Cope (1870) | | | | X | | E | Günther (1884-1902) |
| FAMILY Viperidae | | | | | | | |
| <i>Crotalus atrox</i> Baird and Girard, 1853 | X | X | | | Pr | N | Williams <i>et al.</i> (1961) |
| <i>Crotalus lepidus</i> (Kennicott, 1861) | X | X | X | | Pr | N | Smith (1943); Tanner <i>et al.</i> (1972); Castañeda-Gaytan <i>et al.</i> (2005) |
| <i>Crotalus molossus</i> Baird and Girard, 1853 | X | X | X | | Pr | N | Smith (1943); Gadsden <i>et al.</i> (2006) |
| <i>Crotalus pricei</i> VanDenburgh, 1895 | | | X | | Pr | N | Chrapliwy and Fugler (1955) |
| <i>Crotalus scutulatus</i> (Kennicott, 1861) | X | X | | | Pr | N | Dunkle and Smith (1937) |
| <i>Crotalus stejnegeri</i> Dunn, 1919 | | | X | X | A | E | Boulenger (1896) |
| <i>Crotalus willardi</i> Meek, 1905 | | X | X | | Pr | N | Klauber (1949) |
| FAMILY Leptotyphlopidae | | | | | | | |
| <i>Leptotyphlops humilis</i> Baird and Girard, 1853 | X | | | | | N | Williams <i>et al.</i> (1961) |
| FAMILY Typhlopidae | | | | | | | |
| <i>Rhamphotyphlops braminus</i> (Daudin, 1803) | X | X | | | | I | Guzmán and Muñiz-Martínez (1999) |

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